

# Clinical profile of patients with Hepatitis A virus infection at tertiary care teaching hospital

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## Abstract

**Background:** This study was undertaken to study clinical profile of patients with Hepatitis A virus infection at a tertiary care teaching hospital, Krishna Institute of Medical Sciences, Karad. **Methods:** It was a retrospective study for duration of one year (July 2017 to June 2018). All patients with age more than 15 years, diagnosed as HAV positive were included in the study. Medical records were studied for detailed clinical history, physical examination findings and laboratory findings. Total 40 patients were included in the study. **Results:** Data collected from this study revealed that majority of patients were from age group 15-25 years. Maximum number of patients presented with anorexia (80%) followed by fever (77.5%) and nausea (72.5). About 75% of patients had icterus and hepatomegaly was seen in 40% of patients. Laboratory reports revealed that deranged LFTs with average SGPT value of 836 and SGOT value of 779. average duration of stay in hospital was 7 days. Higher bilirubin levels were seen in older patients. There were 2 patients co infected with hepatitis B and one patient co infected with HIV. **Conclusion:** Although hepatitis A infection rarely results into chronic hepatitis or death, severity of symptoms usually results into longer duration of hospitalization. Hence prevention of this disease by means of vaccination or by improving personal hygiene to prevent feco-oral spread of the disease will be more effective to reduce social and financial burden due to hospitalization.

**Key Word:** Hepatitis A virus infection.

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## INTRODUCTION

Hepatitis is a general term meaning inflammation of liver and can be caused by variety of different viruses such as hepatitis A, B, C, D and E. Since development of jaundice is characteristic of liver disease, correct diagnosis can only be made by testing patients sera for the presence of specific antiviral antibodies or antigens.<sup>1,2</sup> The incidence of infection with these five viruses is generally lowest in industrialised and developed countries

and highest in less developed regions. Hepatitis A virus and hepatitis E virus spread mainly through faeco-oral route and the three hepatitis B, C and D virus spread mainly by exposure to blood.<sup>3</sup> All the viruses can cause acute illness characterised by nausea, malaise, abdominal pain and jaundice.<sup>4</sup> Regional trends are variable and play an important role in clinically suspecting the disease. Hence the current study is undertaken to study the clinical profile of HAV viral hepatitis at a tertiary care hospital.

## MATERIALS AND METHODS

- All patients with age more than 15 years, diagnosed as HAV positive during study period (July 2017-June 2018) were included in the study. Total 40 patients were included.
- This was hospital based retrospective study, carried out in tertiary care teaching hospital.
- A detailed history, physical examination findings, laboratory investigation and treatment details were obtained from patients records.

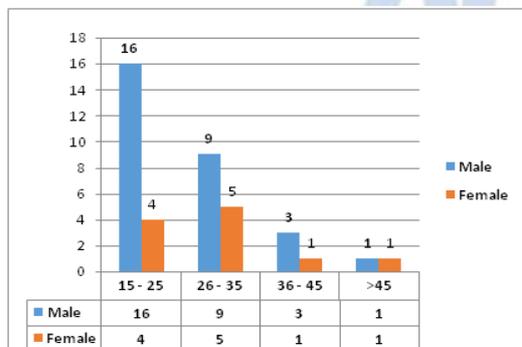
- The patient record were analysed for age, sex, duration of hospitalization, symptoms, signs, treatment given and clinical outcome.
- This was a retrospective observational and non-interventional study conducted at the teaching hospital, Krishna Institute Of Medical Sciences, Karad, during a one year period.
- Ethical Clearance was obtained from the institutional ethics committee.

## RESULTS

In our study total 40 individuals with confirmed diagnosis of HAV hepatitis were included. Of these 29 patients were male and 11 females with male to female ratio being 2.63:1. Most commonly affected age group was 15-25 years (n=20) followed by 26-30 years (n=14). Lowest number of patients were in age group of > 45 years (n=1). Median age of the population included in study was 25 years. Mean age in our study was  $26.6 \pm 9.47$  Years, with the minimum age of 16 years and maximum age of 56 years.

**Table 1: Age group and gender wise distribution**

Age group	Male	Female	Male %	Female %
15 – 25	16	4	40	10
26 – 35	9	5	22.5	12.5
36 – 45	3	1	7.5	2.5
>45	1	1	2.5	2.5
Total	29	11	72.5	27.5

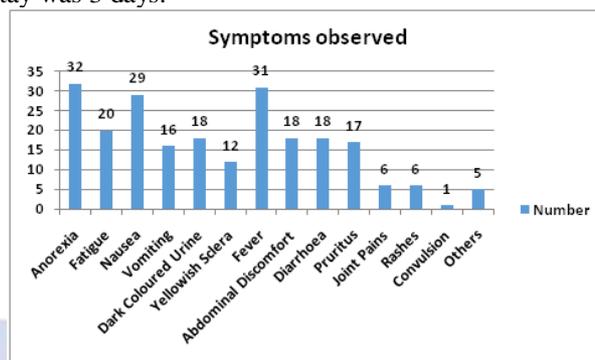


**Table 2: Haematological profile of the study individuals**

Hb	Number	Percentage
<10 g%	10	25
>10 g%	30	75
Platelet Count		
<1.5 Lakh	12	30
>1.5 Lakh	28	70
TLC		
<4000	12	30
4000 – 11,000	20	50
>11,000	8	20

25% of the patients had anemia, average Hb level was  $12.06 \pm 2.2$  gm/dl. 30% patients had platelets less than 1.5 lakh. In TLC, 30% patients had leukopenia while 20%

had leucocytosis. Mean TLC was  $7747.5 \pm 3339.43$  while mean platelet count in our patients was  $1.6 \pm 0.29$  Lacs. Most common chief complaint at the time of presentation was anorexia (80%), followed by fever (77.5%), nausea (72.5%), dark coloured urine, abdominal discomfort and pruritus (45%). Of all the patients included in the study, one patient had presented with seizure episode. The average length of stay in hospital was  $6 \pm 1.3$  days, with only 4 patients who had to stay for more than 15 days, maximum duration of stay was 27 days while minimum stay was 3 days.



**Table 3: Symptoms of study individuals**

Symptoms	Number	Percentage
Anorexia	32	80
Fatigue	20	50
Nausea	29	72.5
Vomiting	16	40
Dark Coloured Urine	18	45
Yellowish Sclera	12	30
Fever	31	77.5
Abdominal Discomfort	18	45
Diarrhoea	18	45
Pruritus	17	42.5
Joint Pains	6	15
Rashes	6	15
Convulsion	1	2.5
Others	5	12.5

**Table 4: Signs of the disease**

Sign	Number	Percentage
Icterus	30	75
Pallor	10	25
Hepatomegaly	16	40
Splenomegaly	5	12.5

The most common sign observed was icterus in 75% of the patients followed by Hepatomegaly in 40%, pallor in 25% and splenomegaly in 12.5% of the patients.

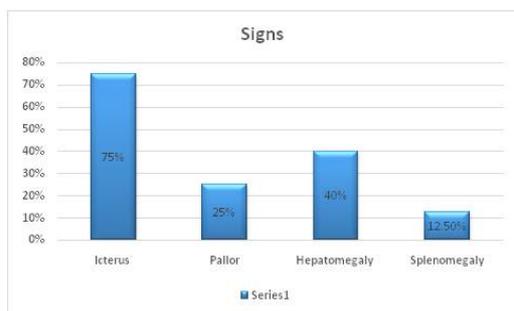


Table 5: Liver profile

Parameter	Number	Percentage
1. Total Serum Bilirubin (mg/dl)		
0.2 – 1	1	2.5
>1	39	97.5
2. Serum Bilirubin Direct (mg/dl)		
0.3 – 0.8	1	2.5
>0.8	39	97.5
3. SGPT (IU/L)		
0 – 40	2	5
>40	38	95
4. SGOT (IU/L)		
0 – 40	1	2.5
>40	39	97.5
5. Serum Albumin (g %)		
3.5 – 4.5	24	60
<3.5	16	40
6. Alkaline Phosphatase (IU/L)		
<90	18	45
90 – 180	11	27.5
>180	1	2.5
8. Prothrombin Time (Sec)		
<15	30	75
>15	10	25

Almost 97.5% study individuals presented with deranged liver function test. Average total bilirubin was 8.35 with SD of 1.88 mg/dl. Laboratory reports revealed that deranged LFTs with average SGPT value of  $836.4 \pm 147.46$  and SGOT value of  $779.1 \pm 153.54$ . 95% of the participants had SGPT levels of  $> 40$  IU/L, while 97.5% patients had SGOT levels of  $> 40$  IU/L. Serum albumin was  $<3.5$  g% in 40% of the participants while Alkaline phosphatase was seen 90 – 180 IU/L in 27.5% and  $>180$  in 2.5% of the study individuals. The serum prothrombin time was raised to  $>15$  seconds in 25% of the individuals.

## DISCUSSION

All hepatitis viruses (A, B, C, D and E) can cause acute illness characterised by nausea, malaise, abdominal pain and jaundice.<sup>4</sup> Still majority of population in developing countries like India are deprived of basic needs of life like purified drinking water. Incidence of viral hepatitis, especially those spread by feco-oral route is high. Hepatitis A virus causing hepatitis constitutes major part

of such feco-orally spread hepatitis.<sup>4</sup> The HAV is transmitted through the faeco-oral route, either from person to person or through contaminated food or water. It is strongly related to personal hygiene and lower standards of living.<sup>5,6</sup> The variability in nature of the disease regarding its onset, presenting symptoms, clinical course and development of complications in viral hepatitis are important aspects which require clinical attention from time to time.<sup>4</sup> Regional trends are variable and play an important role in clinically suspecting the disease. Hence the current study was to undertake the clinical profile of HAV viral hepatitis at a tertiary care hospital. The 50% of our study population were from the age group of 15-25 years, followed by 35% from the age group of 26-35 years, thus a majority of our study population was from young adult group. In a similar study done by Randy Adiwinata *et al* in Jakarta, Indonesia (2017) it was observed that low hospitalization rates of patients with the hepatitis A infection were mainly represented by young productive age. Similar result was obtained in our study with maximum number of patients being in the age group of 15-25 years. Routine Hepatitis A vaccinations in young adults, as a part of the national immunization program, will be beneficial as it is highly protective, it increases productivity by reducing absenteeism from work, and decreases the health cost. There were 2 patients in the study co-infected with hepatitis B and one patient co infected with HIV.<sup>7</sup> Anaemia was observed in 25% of our study population, with average Hb level was  $12.06 \pm 2.2$  gm/dl, 30% patients had leucopenia while 20% had leucocytosis and 30% cases had platelet counts less than 1.5 lacs. A Mocroft<sup>13</sup>, in their study also found association of HAV infection with anaemia. Myron J. Tong *et al* found that The clinical spectrum of acute hepatitis A virus (HAV) infection is varied and includes silent infection detected only by viral serologic testing, subclinical infection revealed by abnormal liver tests, clinically apparent hepatitis and rarely, fulminant hepatitis, which is associated with coma and occasionally death. While most infants and children have silent or subclinical infections, the majority of adults develop symptoms and signs of acute disease. Similar results were obtained in our study with patients presenting with anorexia (80%), followed by fever (77.5%), nausea (72.5%), dark coloured urine, abdominal discomfort and pruritus (45%). Atypical manifestations such as relapse, cholestasis, rash, and arthralgia also have been described in patients with hepatitis A, but the pathophysiology of these phenomena has not been elucidated. Amongst the signs observed in our patients, most common was icterus (75%), followed by hepatomegaly (40%), pallor (25%) and splenomegaly (12.5%). The classic manifestations in HAV infection are

elevated levels of liver enzymes, the appearance of dark urine, dark-coloured stools, and jaundice.<sup>14</sup> These clinical manifestations are due to the host immunologic response against the viral infection, which can induce acute liver injury. Intrahepatic inflammation impairs transport of conjugated bilirubin, leading to an accumulation of bilirubin in the skin and sclera, which causes jaundice.<sup>15</sup> In the similar study done by Myron J. Tong *et al*, it was seen that in adults, HAV infection has been reported to cause more severe liver disease such as cholestatic and relapsing hepatitis, which has a prolonged course.<sup>8,9</sup> However, mortality due to HAV is extremely low (0.05%–0.1%).<sup>10,11</sup> In our study, no mortality was observed due to HAV infection. Only 4 patients had hospital course longer than 15 days. With an average length of stay of  $6 \pm 1.3$  days. HAV super infection in patients with pre-existing chronic liver disease has been reported to cause liver failure and death, particularly in the West. Therefore, routine HAV vaccination is recommended in the West for patients with chronic liver disease.<sup>12</sup> Results from our laboratory testing showed a marked increase of ALT compared to AST and elevated levels of direct bilirubin, decreased serum albumin; these are similar to the results of other studies. We had 97.5% patients with total serum bilirubin  $>1$ , 95% with SGPT  $>40$  and 97.5% with SGOT  $>40$ . Prothrombin time was increased  $>15$  seconds in 25% patients. Study done by Randy Adiwinata *et al* in Jakarta, Indonesia (2017) found that the targeted age group may benefit from receiving routine hepatitis A vaccinations. The average length of hospitalisation in the sample group was 6 days and there are no specific therapies available to shorten the length of illness.<sup>8</sup> The only effective prevention of hepatitis A is via vaccination, with the vaccine having a 94-95% protective efficacy and predicted protection up to 45 years.<sup>14</sup> Vaccination has been proven effective at maintaining a lower risk of infection as per studies conducted on toddlers in Israel.<sup>16</sup> Therefore, WHO recommends that vaccine should be administered universally in low endemic countries like America, Australia, and Northern and Western Europe. The extremely high prevalence of anti-HAV antibody in the general population in India implies that a mass immunization programme against HAV would not be cost-effective. As the anti-HAV test is cheaper than the HAV vaccine, it may be cost-effective to do this test before administering the HAV vaccine.<sup>1</sup> The changing seroprevalence of HAV infection all over the world time to time demands more data on HAV infection from institutions and research centres to help tackle the epidemic.<sup>14-16</sup> This study thus was an attempt to generate insight into the clinical and laboratory findings of HAV infected patients.

## CONCLUSION

Although hepatitis A infection rarely results into chronic hepatitis or death, severity of symptoms usually results into longer duration of hospitalization. Hence prevention of this disease by means of vaccination or by improving personal hygiene to prevent feco-oral spread of the disease will be more effective to reduce social and financial burden due to hospitalization.

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